

**WHAT IS CLAIMED IS:**

- 1           1.       A color wheel cartridge, comprising:  
2                   a removable color wheel housing for receiving a color wheel, wherein  
3       the color wheel housing has a cutout portion to permit light to be projected  
4       therethrough to impinge on only a portion of a color wheel disposed therein; and  
5                   a color wheel.
- 6           2.       The color wheel cartridge as defined in claim 1, further comprising a  
7       motor assembly to drive the color wheel.
- 8           3.       The color wheel cartridge as defined in claim 1, wherein the cutout  
9       exposes less than fifty percent of the color wheel to the light.
- 10          4.       The color wheel as defined in claim 1, wherein the color wheel has a  
11       memory disposed in a portion of thereof.
- 12          5.       The color wheel cartridge as defined in claim 4, wherein the memory  
13       contains color wheel characteristics data.
- 14          6.       The color wheel cartridge as defined in claim 4, wherein the memory  
15       contains firmware.
- 16          7.       The color wheel cartridge as defined in claim 4, wherein the memory  
17       contains a diagnostic program.
- 18          8.       The color wheel cartridge as defined in claim 4, wherein the memory  
19       contains color space data.
- 20          9.       The color wheel as defined in claim 4, wherein the cutout does not  
21       expose the data track to the projected light.
- 22          10.      The color wheel cartridge as defined in claim 9, wherein the memory is  
23       disposed at or adjacent a center of the color wheel.

24           11.     The color wheel cartridge as defined in claim 9, wherein the memory  
25 includes key data to authorize an operation of a projector.

26           12.     The color wheel as defined in claim 1, further comprising a data  
27 portion disposed adjacent a perimeter of the color wheel.

28           13.     The color wheel cartridge as defined in claim 1, wherein the color  
29 wheel housing includes a surface that slides on a track, for ease of removal.

30           14.     A color wheel, comprising:  
31                   a replaceable color wheel disc; and  
32                   a memory for color wheel characteristics data.

33           15.     The color wheel as defined in claim 14, wherein the color wheel disc  
34 has a mounting hole therein.

35           16.     The color wheel as defined in claim 14, wherein the memory is  
36 disposed adjacent the mounting hole.

37           17.     The color wheel as defined in claim 14, further comprising  
38                   a first timing mark; and  
39                   data region on the outer periphery of the color wheel disc.

40           18.     The color wheel as defined in claim 14, wherein the memory includes  
41 firmware.

42           19.     The color wheel as defined in claim 14, wherein the memory includes  
43 a diagnostic program.

44           20.     The color wheel as defined in claim 14, wherein the memory includes  
45 color space data.

46           21.     A projector, comprising:  
47                   means for replacing a color wheel; and  
48                   means for directing light from a light source through at least a portion  
49 of a color wheel.

50           22.     The projector as defined in claim 15, further comprising means for  
51 preventing the projector from being illuminated unless data is detected on the color  
52 wheel indicating that the color wheel is authorized.

53           23.     The projector as defined in claim 15, further comprising a data reader  
54 disposed to read data present on the color wheel.

55           24.     The projector as defined in claim 17, wherein the means for directing  
56 light prevents lights from being directed through the color wheel when the data reader  
57 is activated.

58           25.     A projector, comprising:  
59                   a replaceable color wheel cartridge including housing with a spindle  
60 for receiving a color wheel and with a cutout portion to permit light to be projected  
61 therethrough to impinge on only a portion of a color wheel disposed therein , a color  
62 wheel disposed on the spindle, and a motor for driving the spindle; and  
63                   means for directing light from a light source through at least a portion  
64 of a color wheel.

65           26.     The projector as defined in claim 19, further comprising means for  
66 preventing the projector from being illuminated unless data is detected on the color  
67 wheel indicating that the color wheel is authorized.

68           27.     The projector as defined in claim 19, further comprising a data reader  
69 disposed to read data present on the color wheel.

70           28.     The projector as defined in claim 21, wherein the means for directing  
71 light prevents lights from being directed through the color wheel when the data reader  
72 is activated.

73           29.     The projector as defined in claim 19, wherein the color wheel has a  
74 memory disposed in a portion of thereof.

75           30.     The projector as defined in claim 23, wherein the memory contains  
76 color wheel characteristics data.

77           31.     A method for operating a projector, comprising:  
78                     loading a replaceable color wheel into a projector; and  
79                     downloading from the replaceable color wheel data to the projector a  
80     firmware upgrade for the projector.

81           32.     A method for operating a projector, comprising:  
82                     loading a replaceable color wheel into a projector; and  
83                     downloading from the replaceable color wheel data comprising a  
84     diagnostics program; and  
85                     running the diagnostics program on the projector.

86           33.     A projector, comprising:  
87                     a user replaceable color wheel.

88           34.     The projector as defined in claim 33, further comprising logic for  
89     reading a memory formed on the color wheel.

90           35.     A method for operating a projector, comprising:  
91                     loading a replaceable color wheel into a projector; and  
92                     detecting timing marks on the replaceable color wheel to forcing  
93     timing related to color segments on the replaceable color wheel to hereby allow  
94     different color wheels to be used on the projector.